

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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1 Sub 1 1. (Currently amended) A method for selectively auditing accesses to a
2 relational database, comprising:
3 receiving a query for the relational database;
4 selectively auditing an access to the relational database, wherein selectively
5 auditing the access involves automatically modifying the query prior to processing
6 the query, so that processing the query causes an audit record to be created and
7 recorded only for rows in relational tables that are actually accessed by the query
8 and that satisfy an auditing condition and not for other rows,
9 wherein the auditing condition specifies a condition based on a value
10 of a field in a row in the relational database, and wherein
11 satisfying the auditing condition allows selective auditing of the
12 query;
13 processing the modified query to produce a query result, wherein processing
14 the modified query includes,
15 creating the audit record for rows in relational tables that are
16 accessed by the query and that satisfy the auditing condition, and
17 recording the audit record in an audit record store; and
18 returning the query result.

1 2. (Original) The method of claim 1, further comprising, if the query
2 includes a select statement, inserting a case statement into the select statement that

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3 calls a function that causes the audit record to be created and recorded if the
4 auditing condition is satisfied.

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3. (Previously presented) The method of claim 2, further comprising
1 ensuring that the case statement is evaluated near the end of the query processing so
2 that the case statement is evaluated only after other conditions of the query are
3 satisfied.
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4. (Original) The method of claim 1, further comprising retrieving the
1 auditing condition for a given table from a data structure associated with the given
2 table.
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5. (Original) The method of claim 1, wherein if the query modifies at least
1 one entry in the relational database, using a relational database system trigger to
2 create and record the audit record for the modification to the relational database.
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6. (Original) The method of claim 2, wherein inserting the case statement
1 into the query further comprises:
2 inserting the case statement into the query;
3 allowing a query processor to allocate buffers for the query;
4 removing the case statement from the query;
5 allowing the query processor to generate a query plan for the query; and
6 scheduling the case statement near the end of the query plan to ensure that
7 the case statement is evaluated only after other conditions of the query are satisfied,
8 so that the audit record is created only for rows that are actually accessed by the
9 query.
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7. (Original) The method of claim 1, wherein the audit record includes:
1 a user name for a user making the query;
2 a time stamp specifying a time of the query; and
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4 a text of the query.

1 ~~8.~~ (Original) The method of claim 1, wherein the auditing condition
2 includes a condition for a field within the relational database.

1 ~~9.~~ (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for selectively auditing accesses to a relational database, the method
4 comprising:
5 receiving a query for the relational database;
6 selectively auditing an access to the relational database, wherein selectively
7 auditing the access involves automatically modifying the query prior to processing
8 the query, so that processing the query causes an audit record to be created and
9 recorded only for rows in relational tables that are actually accessed by the query
10 and that satisfy an auditing condition and not for other rows,
11 wherein the auditing condition specifies a condition based on a value
12 of a field in a row in the relational database, and
13 wherein satisfying the auditing condition allows selective auditing of
14 the query;
15 processing the modified query to produce a query result, wherein processing
16 the modified query includes,
17 creating the audit record for rows in relational tables that are
18 accessed by the query and that satisfy the auditing condition, and
19 recording the audit record in an audit record store; and
20 returning the query result.

1 10. (Original) The computer-readable storage medium of claim 9, wherein
2 the method further comprises, if the query includes a select statement, inserting a
3 case statement into the select statement that calls a function that causes the audit
4 record to be created and recorded if the auditing condition is satisfied.

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1 ⁷ ⁸ 11. (Previously presented) The computer-readable storage medium of claim
2 ⁷ 10, wherein the method further comprises ensuring that the case statement is
3 evaluated near the end of the query processing to that the case statement is
4 evaluated only after other conditions of the query are satisfied.

1 ⁹ 12. (Original) The computer-readable storage medium of claim ⁷ 9, wherein
2 the method further comprises retrieving the auditing condition for a given table
3 from a data structure associated with the given table.

1 ¹⁰ 13. (Original) The computer-readable storage medium of claim ⁷ 9, wherein if
2 the query modifies at least one entry in the relational database, the method further
3 comprises using a relational database system trigger to create and record the audit
4 record for the modification to the relational database.

1 14. (Original) The computer-readable storage medium of claim 10, wherein
2 inserting the case statement into the query further comprises:
3 inserting the case statement into the query;
4 allowing a query processor to allocate buffers for the query;
5 removing the case statement from the query;
6 allowing the query processor to generate a query plan for the query; and
7 scheduling the case statement near the end of the query plan to ensure that
8 the case statement is evaluated only after other conditions of the query are satisfied,
9 so that the audit record is created only for rows that are actually accessed by the
10 query.

1 ¹¹ 15. (Original) The computer-readable storage medium of claim ⁷ 9, wherein
2 the audit record includes:
3 a user name for a user making the query;
4 a time stamp specifying a time of the query; and
5 a text of the query.

16. (Original) The computer-readable storage medium of claim 9, wherein the auditing condition includes a condition for a field within the relational database.

17. (Currently amended) An apparatus that selectively audits accesses to a relational database, comprising:

- a receiving mechanism that is configured to receive a query for the relational database;
- a selective auditing mechanism configured to selectively audit an access to the relational database, the selective auditing mechanism including a query modification mechanism that is configured to automatically modify the query, prior to processing the query, so that processing the query causes an audit record to be created and recorded only for rows in relational tables that are actually accessed by the query and that satisfy an auditing condition and not for other rows,
- wherein the auditing condition specifies a condition based on a value of a field in a row in the relational database, and
- wherein satisfying the auditing condition allows selective auditing of the query;
- a query processor that is configured to process the modified query to produce a query result, wherein processing the modified query includes,
 - creating the audit record for rows in relational tables that are accessed by the query and that satisfy the auditing condition, and
 - recording the audit record in an audit record store; and
- a returning mechanism that is configured to return the query result.

18. (Original) The apparatus of claim 17, wherein if the query includes a select statement, the query modification mechanism is configured to insert a case statement into the select statement that calls a function that causes the audit record to be created and recorded if the auditing condition is satisfied.

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1 ~~19.~~ (Previously presented) The apparatus of claim 18, wherein the query
2 modification mechanism is configured to ensure that the case statement is evaluated
3 near the end of the query processing so that the case statement is evaluated only
4 after other conditions of the query are satisfied.

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1 ~~20.~~ (Original) The apparatus of claim ~~17~~, wherein the query modification
2 mechanism is configured to retrieve the auditing condition for a given table from a
3 data structure associated with the given table.

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1 ~~21.~~ (Original) The apparatus of claim ~~17~~, wherein if the query modifies at
2 least one entry in the relational database, the apparatus uses a relational database
3 system trigger to create and record the audit record for the modification to the
4 relational database.

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1 22. (Original) The apparatus of claim 18, wherein the query modification
2 mechanism is configured to:
3 insert the case statement into the query;
4 allow the query processor to allocate buffers for the query;
5 remove the case statement from the query;
6 allow the query processor to generate a query plan for the query; and
7 schedule the case statement near the end of the query plan to ensure that the
8 case statement is evaluated only after other conditions of the query are satisfied, so
9 that the audit record is created only for rows that are actually accessed by the query.

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1 ~~23.~~ (Original) The apparatus of claim ~~17~~, wherein the audit record includes:
2 a user name for a user making the query;
3 a time stamp specifying a time of the query; and
4 a text of the query.

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- 1 24. (Original) The apparatus of claim ~~17~~, wherein the auditing condition
- 2 includes a condition for a field within the relational database.
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